

2013

Codding Farm Barn: Reuse and Rehabilitation Feasibility Report

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Coddling Farm Barn

Reuse and Rehabilitation
Feasibility Report

Academic Partner:
School of Architecture, Art
and Historic Preservation

Community Partner:
North Attleborough Historical Commission

Fall 2013

The Roger Williams University Community Partnerships Center

The Roger Williams University (RWU) Community Partnerships Center (CPC) provides project-based assistance to non-profit organizations, government agencies and low- and moderate-income communities in Rhode Island and Southeastern Massachusetts. Our mission is to undertake and complete projects that will benefit the local community while providing RWU students with experience in real-world projects that deepen their academic experiences.

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- Education
- Engineering and Construction Management
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East elevation of Coddington
Farm barn.

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December 2013

Team Members: Leaha Bovino | Matt Butzke | Christina Coleman | Natalie Holy

HP 681 - Historic Rehabilitation | Professor Arnold Robinson

HP 384 - Preservation Planning Workshop | Professor Arnold Robinson

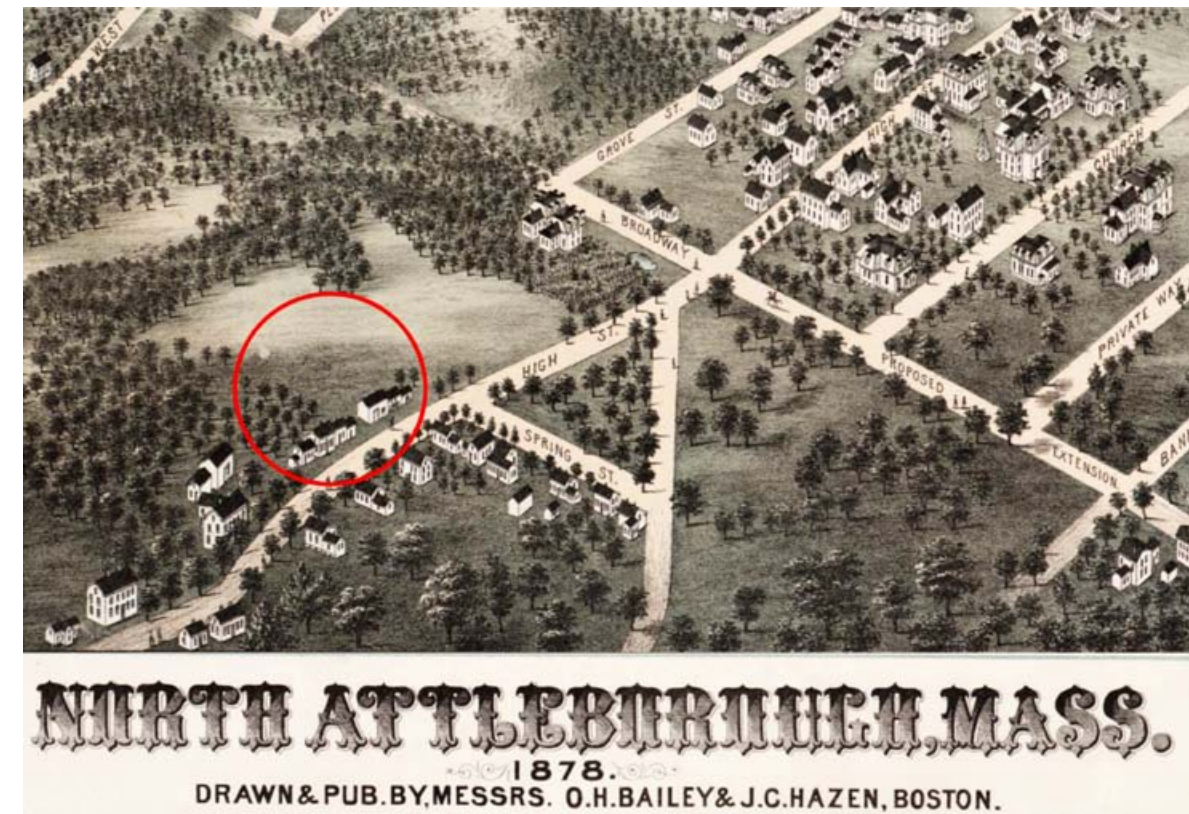
Executive Summary

The barn at Coddington Farm, a property listed on the National Register of Historic Places, was the subject of this semester-long project. Coddington Farm is located at 217 High Street in North Attleborough, Massachusetts. The barn is located to the east of the farmhouse, and the south elevation faces the street. The North Attleborough Historical Commission submitted the project to the Community Partnerships Center (CPC) at Roger Williams University. This project was then undertaken in fulfillment of the classes HP 681 Historic Rehabilitation Workshop and HP 384 Preservation Planning Workshop.

The community partner was the North Attleborough Historical Commission. The student team was provided with the National Register Nomination, CPC application and prospectus entitled "The Coddington Farm Cultural and Learning Center." The students regularly met with Ann Chapdelaine, chair of the North Attleborough Historical Commission, to visit the barn and discuss the project.

This report contains an existing conditions assessment, a scope of work for rehabilitation treatments and a suggested new design that accommodates the programming desired by the community partner.

The results of the existing conditions assessment concluded that the barn is in poor condition overall. The barn is no longer used for dairy functions and is structurally compromised due to the collapse of the north portion. There are large areas of deterioration, and the interior is entirely exposed to the elements due to missing windows, siding and an entire elevation. Furthermore, vandals have damaged still extant historic elements. The short-term priority of the North Attleborough Historical Commission as a result of this project is to conduct selective site demolition, stabilize the structure and seal the barn from further vulnerability to vandals and natural elements.



Historic map of
North Attleborough
and Coddington Farm.

Introduction

Codding Farm is located at 217 High Street, North Attleborough, Massachusetts. North Attleborough is in southeast Massachusetts. Established in the early 19th century, the farm remained in use until recently. The farmhouse was likely built around 1833; the outbuildings were built at various times after that. Abiel Codding, Jr. purchased the property in 1850 and, for the next several decades, the farm was lived in and operated by members of the Codding family.

In January of 2001, the town of North Attleborough purchased Codding Farm, including 58 acres of land and all built structures. The farm remains a nearly intact representation of a typical farmstead from the region. Now listed on the National Register of Historic Places, Codding Farm was first submitted for National Register eligibility in 2007, but was denied. Yet in April of 2009, Parcel B of Codding Farm was officially listed on the National Register of Historic Places. It qualified for nomination under Criteria A, for its association with events that have made a significant contribution to history, and Criteria C, that the property embodies the distinctive characteristics of a type, period or method of construction.



The collapsed northern section of the barn has let the interior become more vulnerable to the elements.

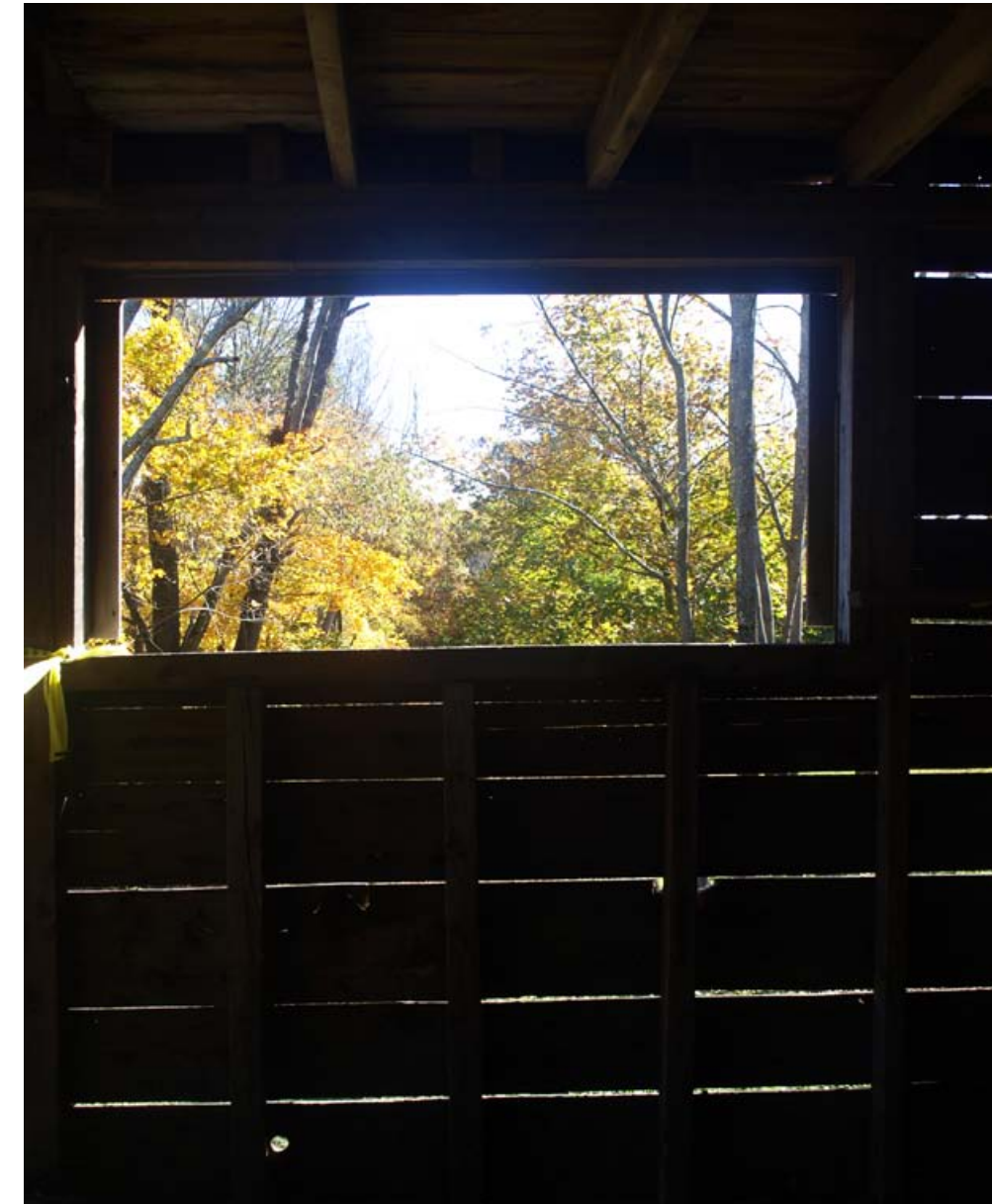
Methodology

The research presented in this report was done in fulfillment of course requirements for HP 681 Historic Rehabilitation Workshop and HP 384 Preservation Planning Workshop in the Roger Williams University (RWU) Historic Preservation program. The work has been completed through coordination with the RWU Community Partnerships Center. Although the history and context of the entire Coddington Farm was considered, the primary focus of this project was the barn.

The project team included four students: Leaha Bovino and Natalie Holy—both graduate students in the HP 681 class—and Matt Butzke and Christina Coleman in the HP 384 class. All assessments were done with the naked eye and without the use of a ladder. The outcomes presented in this report are the results of work completed from September to December 2013.

This report includes an existing conditions assessment, with corresponding architectural drawings and photographs, to identify the conditions of individual elements that comprise the whole barn. The report also outlines a recommended scope of work for rehabilitation treatments and provides a suggested new design for the rehabilitation of the Coddington Farm barn.

The Roger Williams University School of Architecture, Art History and Historic Preservation approved of this project in coordination with the Roger Williams University Community Partnerships Center. The research was completed with the full cooperation and generous support of The North Attleborough Historical Commission. The team would like to particularly thank Ann Chapdelaine for her availability and cooperation throughout duration of this project.



History

What is now known as Coddington Farm was originally owned by the Richards Family. Deed research supports that in 1833 Jonathan Richards owned 30+ acres of land and built the house that we now see on High Street. Through the middle of the 19th century, members of the Richards family owned large amounts of land on both sides of High Street, including what is now Coddington Farm.

Abiel Coddington Sr. was born in Taunton, Massachusetts in 1817 and worked on his father's farm until he was 14 or 15 years old. He later moved to Attleborough, Massachusetts, where his son, Abiel Jr., would grow up to be a wealthy jeweler. According to the Coddington family descendants, in 1850, Abiel Coddington, Jr. bought the farm and all of its outbuildings for his father. Abiel Sr. ran the farm as an agricultural farm where he grew a variety of grains, hay, apples and a few vegetable crops, and kept a small herd of less than a half a dozen cows. Abiel Sr. died in 1881.

Abiel Coddington, Jr. was a prominent jeweler and short-term banker, not a farmer. Shortly after his father's death, Abiel began renting the property to tenant farmers. These farmers would live in the house, work the land and tend the livestock, while Coddington descendants owned and maintained the house and outbuildings. The land was transferred to different family members due to deaths.



It was just after one of these land transfers that the present dairy barn was built or rebuilt. It is likely that the barn was built specifically for the use of the tenants at the time, the Tituses. The Tituses began operating the farm in 1910. Hiram Titus ran and operated a dairy farm for over forty years. The large steel "Esco" brand electric dairy sterilizer is still present in the corner of the dairy room. Hiram died in 1959 bringing an end to Coddington Farm as a dairy farm.

For the next few decades, descendants of the Coddingtons continued to rent out the farm until, sadly, in 2000 it looked as if the land was going to be divided and developed. A local teenager, Molly Sullivan, lobbied for saving the farm for future generations. At a town meeting in October of 2000, the town of North Attleborough voted to purchase the property for \$2.3 million.

In January of 2001 the town purchased 58 acres, which included any buildings on the property. Eight of the 58 acres were designated for use by the Park and Recreation Department. For a while the property sat untouched. Then in the fall of 2006, several parcels of land were divided. The barn is located on parcel B, which is 3.8 acres of land. At this time, it was decided that a group of volunteers would work to rebuild the barn under the non-profit name "Friends of The Coddington Farm."

In December 2006, the North Attleborough Historical Commission, with the support of the Board of Selectmen, applied to the Massachusetts Historical Commission (MHC) for a survey and planning grant for parcel B. It was denied because the parcel was not listed on the National Register of Historic places. Fortunately, the North Attleborough Historical Commission received word that the MHC considered the Coddington Farm and its buildings to be a "rare and remarkable example of surviving New England architecture." The MHC funded the research for the National Register nomination.

In 2007, historian Anne Forbes was hired to document the history of Coddington Farm and to prepare a National Register nomination. In 2009, the National Park Service placed the Coddington Farm parcel B on the National Register. Since then the barn and house have continued to fall into disrepair including in 2011 a series of vandalism.

Coddington Farm Barn and Farmhouse.

Throughout the past year, the North Attleborough Historical Commission has been working to stabilize the barn. They have also worked in conjunction with the Board of Selectmen to determine new uses for the land and build-

ings. Early in 2013 a community garden was started on the property. Currently, the barn is part of a project for a Roger Williams University class in conjunction with the Community Partnerships Center.

Character-Defining Features

Through the team's observations, research and discussion with citizens of North Attleborough at a public town meeting, a list of character-defining features was developed. Those features are as follows:

- Three-bay English barn elevation
- Field stone foundation
- Wood frame construction
- Cedar shingle cladding
- The original sliding barn door and transom window
- Window locations
- The dairy washout room with "Esco" brand dairy sterilizer
- Stanchions, water dishes
- Hardware and fixtures
- Wood flooring



1. The barn's original wood frame construction.

2. The dairy washout room with "Esco" brand dairy sterilizer.

Site Context and Landscape

Regulatory Context

The area outlined in orange is Coddling Farm, which according to the map key, is zoned as a residential area. R20 - Residential District (20,000 square foot areas) are declared to be those which may be served by the municipal sewer collection system. Soil land conditions require additional area for on-site systems to protect the existing residential character, use and the health and safety of the owners, tenants and abutters.

Uses and programs that are permitted in an R20 that may be relevant to Coddling Farm: historical association or use, agriculture (crops), horticulture and floriculture, and non-commercial forestry and growing of vegetables and flowers.

Building codes for Massachusetts follow the International Building Code.



The area outlined in orange is Coddling Farm, which is zoned as a residential area.

1



1. Community garden at Coddling Farm property.

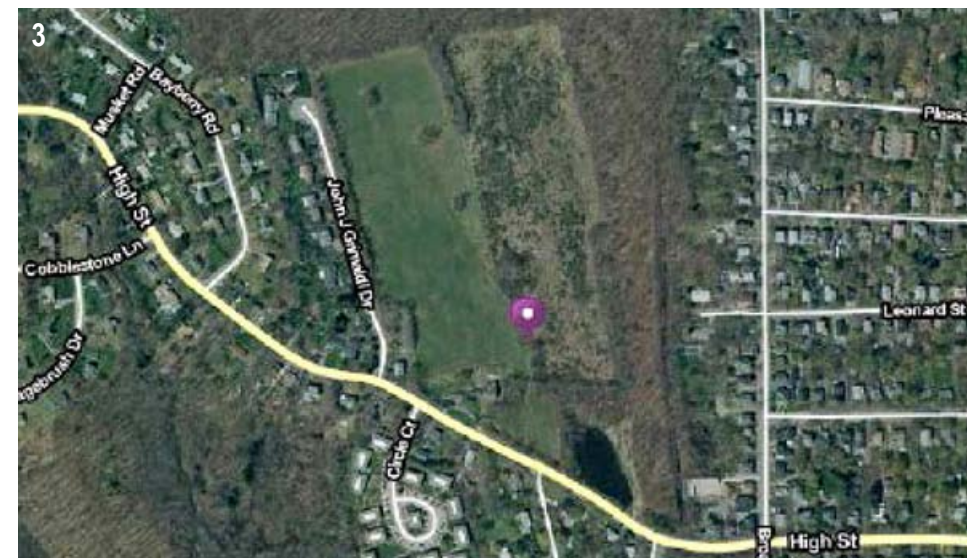
2. View of Coddling Barn and Farmhouse from fields.

3. Map shows the extent of farmland surrounding Coddling Farm barn.

2



3



Existing Conditions

Site Drainage

The site drainage around the barn is mainly natural landscape that does not appear to have been changed by unnatural means. It slopes slightly northeast. There is a large field next to the barn, so most of the water drains into the ground. Currently, there does not appear to be any problems with the natural landscape surrounding the barn. The barn does not have any gutters or downspouts.

Foundation

The foundation is in moderately poor condition. On the west and south elevations, the foundation appears to be original, made of rubble stone cemented together. In several places there are cracks or the cement has chipped off, as in the southeast corner. The north elevation has been extensively replaced to hold back the falling hill. This was presumably done after the north elevation of the barn collapsed when they were working on the site. This portion is in excellent condition.



Shingles

The siding, comprised of wooden shingles, is in poor condition. These shingles are largely rotted out and appear to be original to the barn at Codding Farm. Moss grows on some of the shingles. There are portions of the barn where shingles are completely missing, such as the area on the west elevation. Also, the wall on the north elevation is entirely missing.

1. The southeast corner of the foundation (made of rubble stone) is chipped off.
2. Deteriorated shingles on the east elevation.



Decorative Trim

The decorative painted wood trim is original. The trim is flat and plain in design. The wood has weathered and is in need of some repairs and fresh paint.



Roof and Cupola

The roofing is in very good condition; it is not original. After the North Attleborough Historical Commission came into possession of the barn, the roof was replaced. The roofing material is asphalt shingles. This is not the material that would have been used originally, but the roof is watertight.

The cupola also appears to have been preserved during the roofing process and is in good condition with minimal to no weathering damage. The base of the cupola was never finished with cedar shingles, thus leaving the waterproofing membrane exposed.

Fascia and Soffit

The fascia and soffit were examined from ground level since no ladder was available for a full examination. They are painted wood and have experienced minimal alteration. However, they are in extremely poor condition on the east elevation where the soffit has started to fail, disintegrate and is precariously hanging by just a few nails.



1. The original decorative trim is weathered and in need of repair.
2. The disintegrating fascia on the east elevation; the soffit is hanging on with just a few nails.
3. The new asphalt roof and the cupola are in good condition.

Windows

The windows are in varying levels of condition. Those located on the west elevation seem to be relatively protected, and therefore, the frames, sash, glass and glazing are still present. Windows on the east elevation have been completely removed leaving only the openings and frames. Some windows on the west elevation have a metal wire mesh on the exterior.



Structural System

The structural system for the Coddling Farm barn is in very poor condition because of much rot to structural members. In several areas beams are on the verge of completely rotting away. Beams are also precariously balanced. At one point someone tried to make the barn structurally sound by jacking it up in several places. This was done poorly. These jacks are not on level ground, and the timbers balancing on them are not centered. On the first floor, the entire north elevation, which has collapsed, is resting on unstable structural support.



1. West elevation window covered with metal wire mesh.
2. Many of the structural beams are rotting away and need to be replaced.
3. The collapsed north elevation is precariously balanced on a crooked wooden column.

Wood Flooring

The floors can be divided into three identifying sections: the section taped off by the north elevation; the section adjacent to the east elevation where the cows stood; and the rest of the floor. The first two sections are in poor condition. Due to the north elevation wall falling down, much of the floor is missing, making the area completely unsafe for walking. Even in the areas that do have flooring, there are large gaps where floor boards have rotted away.

The section adjacent to the east elevation is also unsafe. This area contained the trough for the cows, and the entire trough is rotted out. Also, several boards are missing or rotted. The rest of the flooring is in better condition. It contains some rotted out areas and missing boards, but overall it is in fair condition.

Walls

The walls all appear to be original to the Coddling Farm barn. They are all made of wood and have no insulation. The wall on the north elevation is completely missing. There are few interior walls. The condition of the walls is mixed. Some places are in good condition; other places show boards



missing and large portions of rot and termite damage. There is much paint failure, and graffiti is also present.

Doors

The barn has four different types of doors. The south elevation contains two: a regularly dimensioned solid access door and the primary sliding barn door. Both of these doors are extant, but the wood and paint have weathered and started to split towards the bottom. The access door on the west elevation is the most decorative, however, the wood is badly damaged—most likely the result of vandals—and has since been patched. Lastly, there were three doors on the bottom ground level that have been pulled off of their hinges. Only one of these is extant on the site, laying on the ground in very poor condition.

The interior doors are generally in poor condition due to being split, badly damaged or missing sections.



1. The door on the west elevation requires extensive repair or replacement.

2. Walls show rot and termite damage.

3. Large sections of flooring have been broken or rotted away.



Fixtures and Furnishing

The barn still contains remnants of its various uses throughout history. Equipment used for cattle, such as stanchions and water bowls, remain in the main space. Also remaining in the barn is an “Esco” brand dairy sterilizer, a sink and hooks.



Hardware

Some original hardware remains extant in the barn such as hinges and door knobs, although most are extremely rusted.

Roof Framing

The ceilings are in good condition. For most of the barn the ceiling is the roof. This was repaired when the North Attleboro Historical Society replaced the exterior shingles on the roof.

Loft

Overall, the loft is in good condition. However, there are no stairs leading up to it. The loft flooring is 98% intact, with holes or missing boards in isolated areas.

The walls of the loft are similar to the walls of the rest of the barn. There is also graffiti present on them. The ceilings are the same ceilings. It should be noted that there are parallel cross beams adding structural support on the east elevation side of the loft.

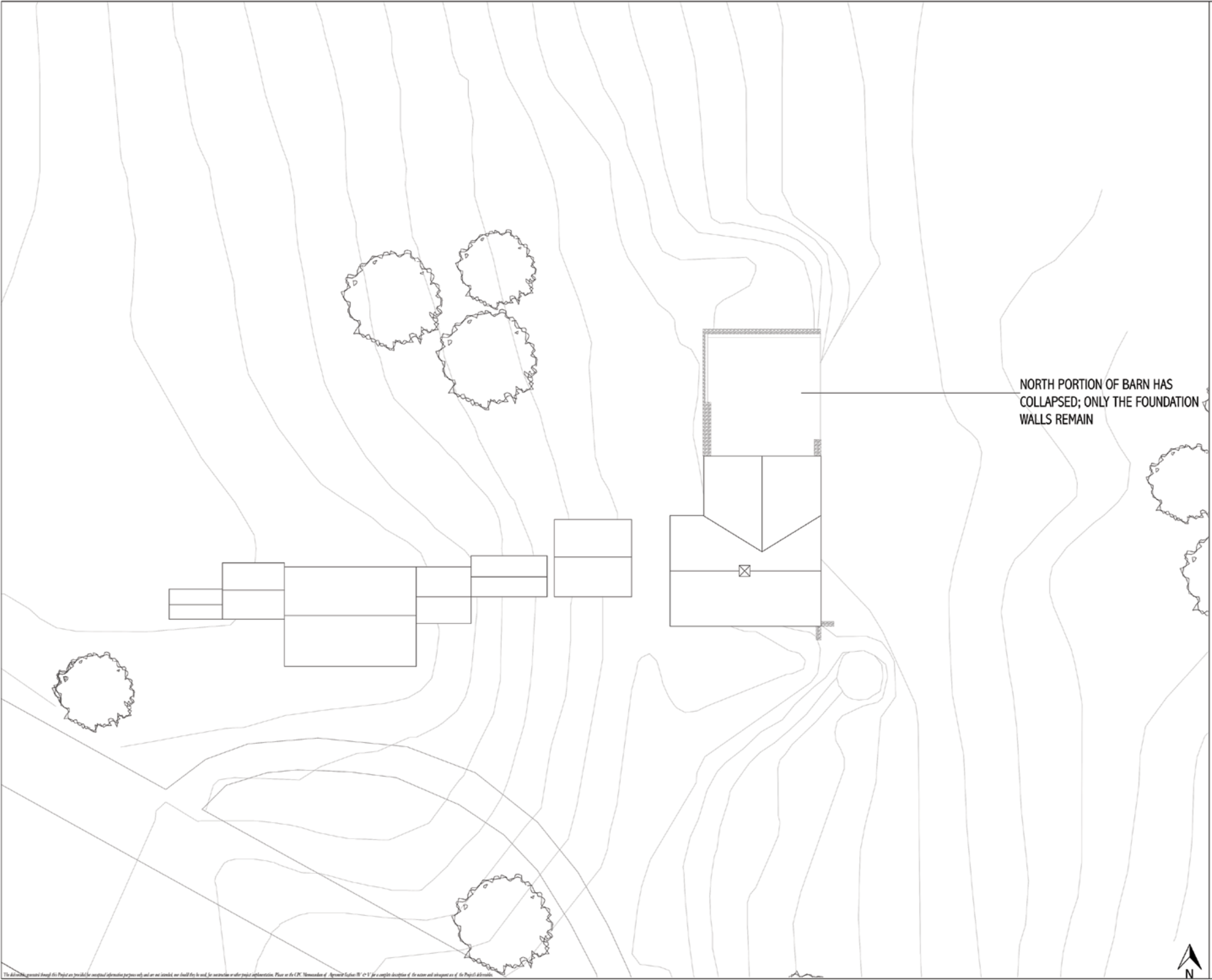


1. Some original hardware remains, although it is extremely rusted.

2. Remnants of electrical wiring that is no longer in working order.

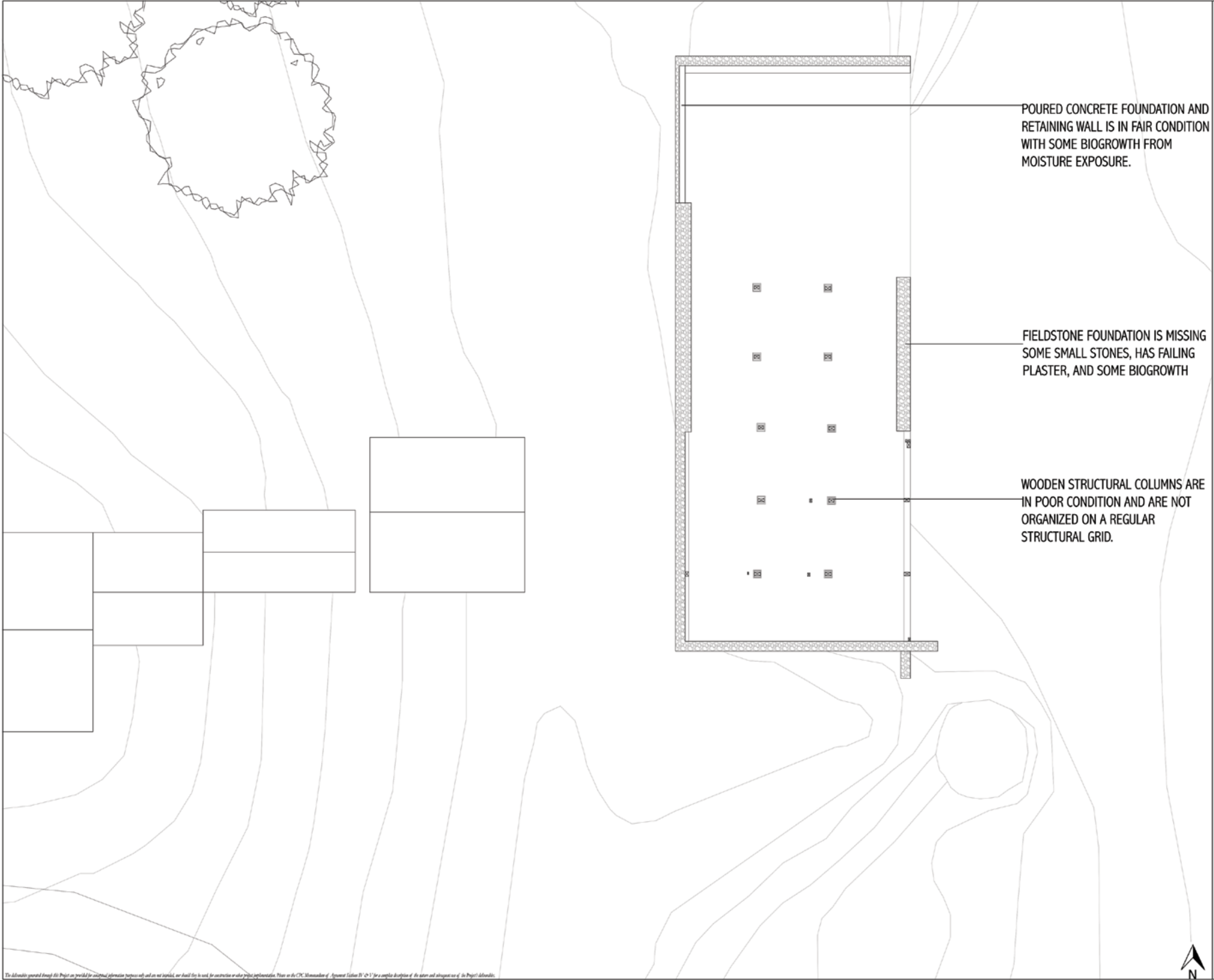
Systems

There are remnants of systems throughout the barn. It seems that there are many generations of wiring for electricity, however, they are no longer in working order.




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Date: 12-13-2013		Project		
Drawn By: Leaha Rovino		Project		
Checked By: N/A		Project		
Community Partner: North Attleborough Historic Commission		Project		
Location: North Attleborough, MA, 02760		CODDING FARM BARN		

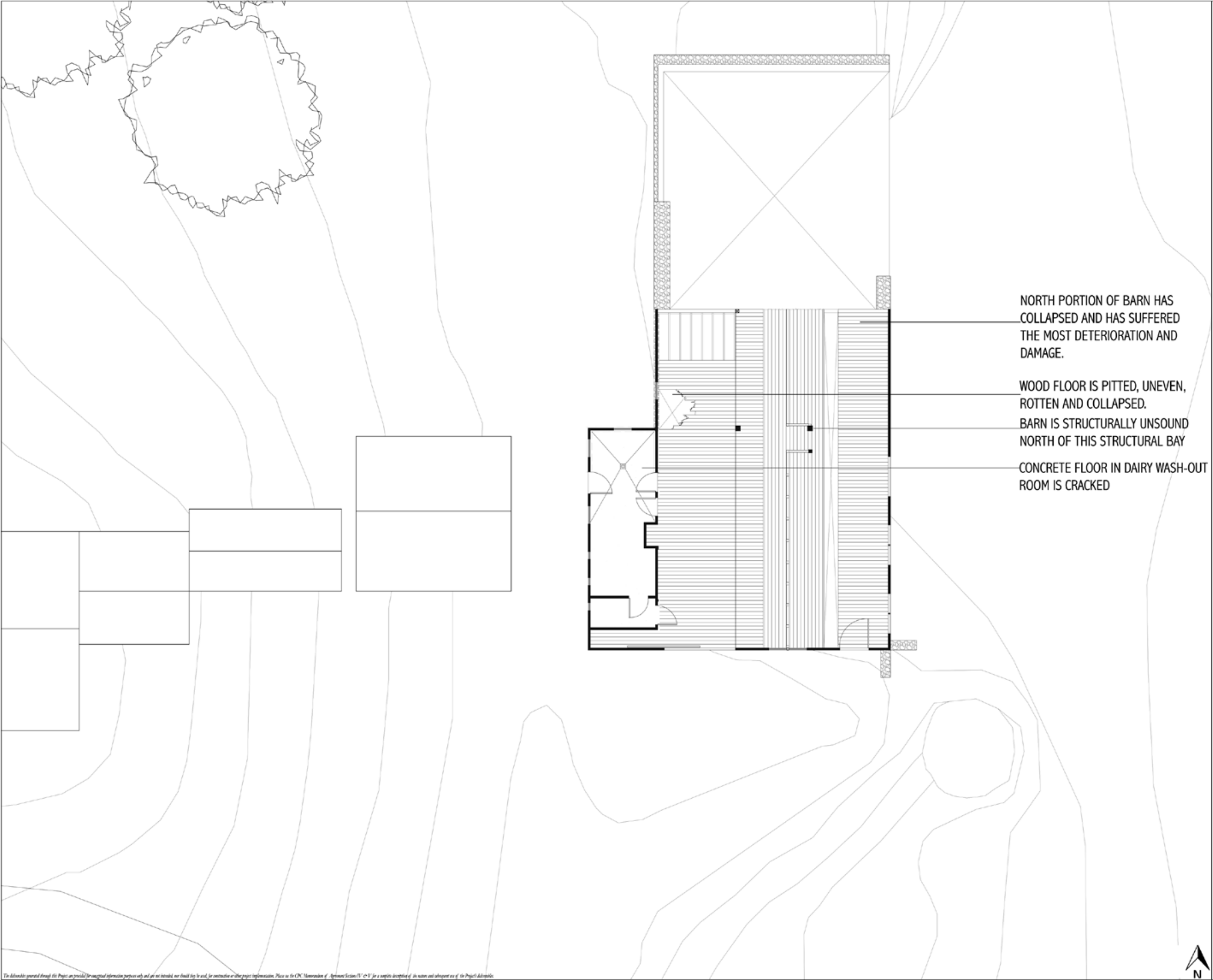
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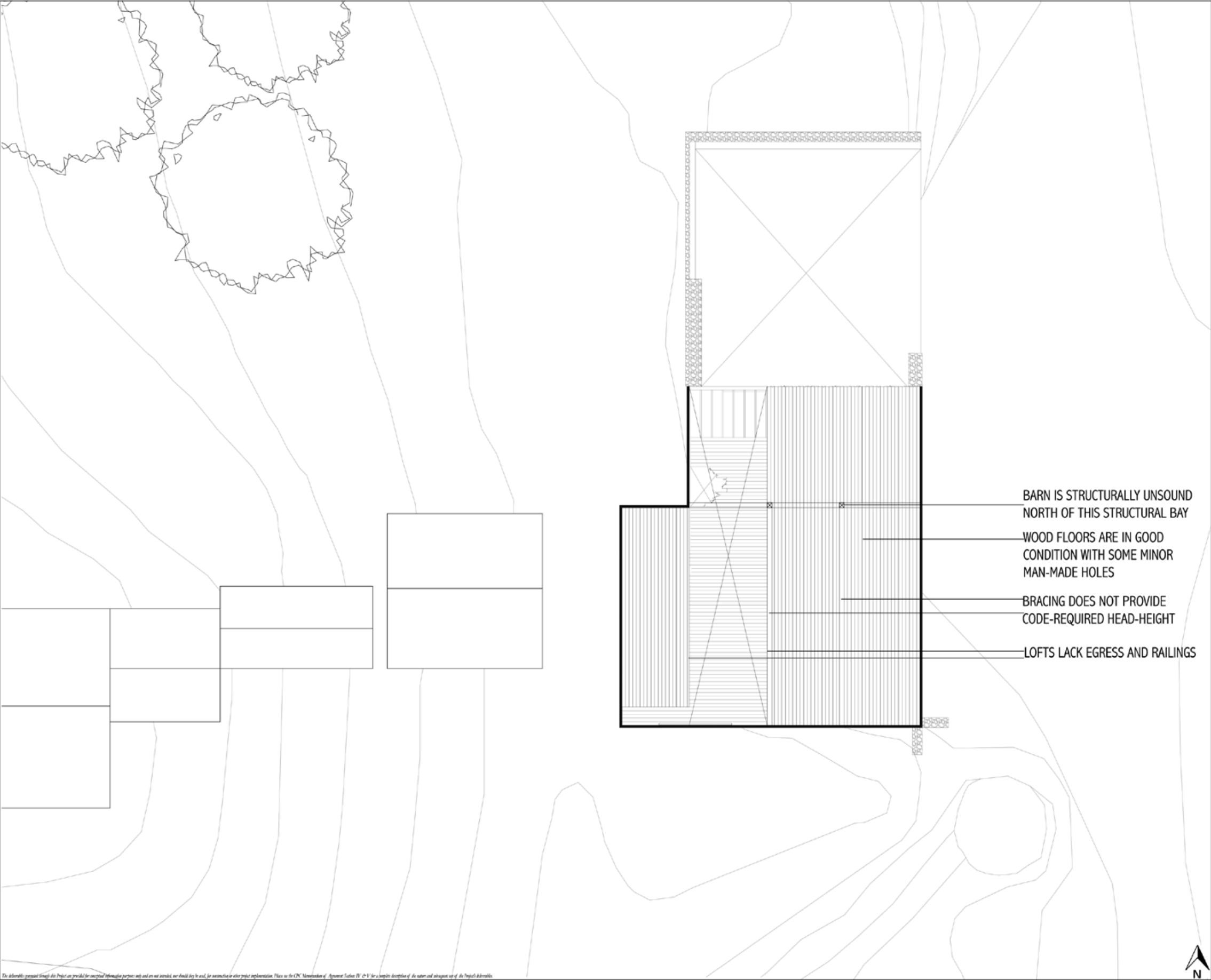
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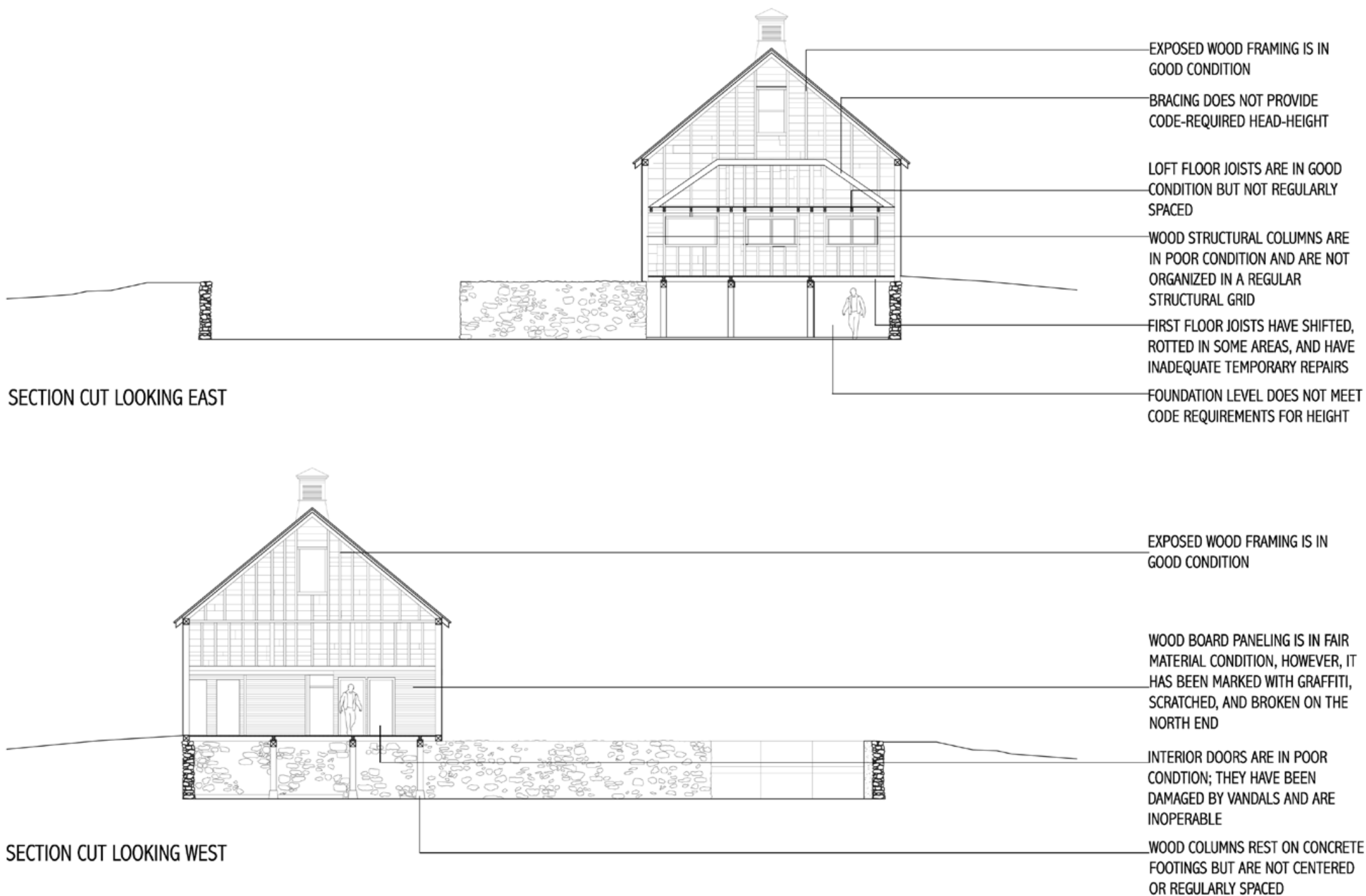
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	Checked By: N/A	Community Partner: North Attleborough Historic Commission		
	Location: North Attleborough, MA, 02760			



 Community Partnerships Center at Roger Williams University	CPC Project No: 000		Sheet Title	
	Date: 12-13-2013		FIRST FLOOR PLAN	
	Drawn By: Leaha Borino			
	Checked By: N/A			
	Community Partner: North Attleborough Historic Commission			
	Location: North Attleborough, MA, 02760			
Coddling Farm Barn		Drawing		EX.3
Coddling Farm Barn				



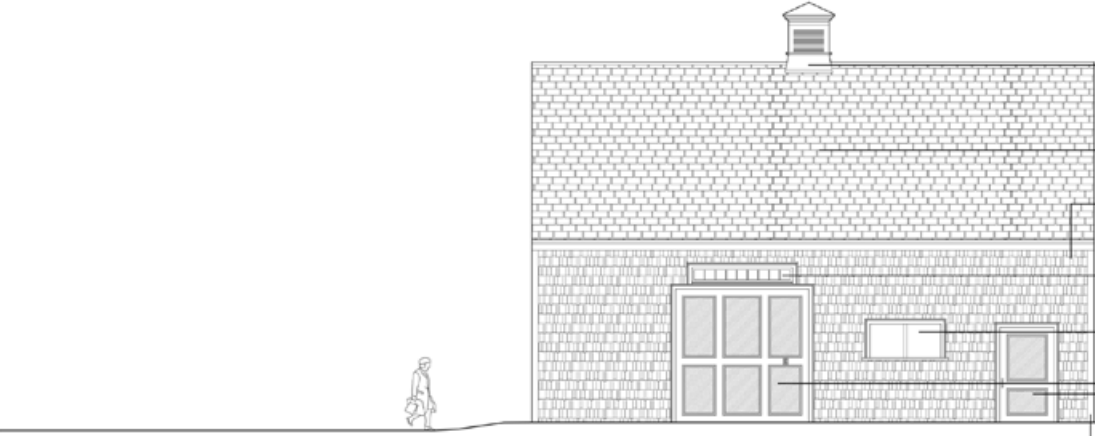
 <div>Community Partnerships Center at Roger Williams University</div>		CPC Project No: 000	Sheet Title	LOFT FLOOR PLAN	1/8" = 1'-0"
		Date: 12-13-2013			
		Drawn By: Leaha Borino			
		Checked By: N/A			
		Community Partner: North Antleborough Historic Commission	Project	CODDING FARM BARN	EX.4
		Location: North Antleborough, MA, 02760			



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 Community Partnerships Center at Roger Williams University	CPC Project No: 000		Sheet Title		
	Date: 12-13-2013		LONGITUDINAL SECTIONS		
	Drawn By: Leahla Bovino				
	Checked By: N/A				
	Community Partner: North Attleborough Historic Commission				
	Location: North Attleborough, MA, 02760		CODDING FARM BARN		
		Project		Drawing	EX.5

SOUTH ELEVATION



CUPOLA IS MISSING CEDAR SHINGLES ON ALL ELEVATIONS; WATERPROOFING MEMBRANE IS EXPOSED

ASPHALT SHINGLE ROOF IS IN GOOD CONDITION

CEDAR SHINGLES ARE BROKEN, WEATHERED, AND MISSING


TRANSOM WINDOW GLASS IS BROKEN

WINDOW IS MISSING SASH

DOORS ARE IN GOOD CONDITION AND RETAIN ALL ORIGINAL DETAILING

TRIM IS IN GOOD CONDITION; SOME AREAS OF ROT NEAR GROUND

NORTH ELEVATION



ASPHALT SHINGLE ROOF IS IN GOOD CONDITION


NORTH PORTION OF BARN HAS COLLAPSED; NORTH ELEVATION IS OPEN AND EXPOSED TO THE ELEMENTS

CEDAR SHINGLES ARE BROKEN, WEATHERED, AND MISSING

FRAME AND SASH REMAIN; GLASS AND GLAZING ARE IN POOR CONDITION

COLLAPSED STRUCTURE IS RESTING ON THIS UNSTABLE SINGULAR WOOD COLUMN

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Community Partnerships Center
at Roger Williams University

CPC Project No: 000

Date: 12-13-2013

Drawn By: Lealia Bovino

Checked By: N/A

Community Partner: North Attleborough Historic Commission

Location: 217 High Street
North Attleborough, MA, 02760

Sheet Title

SOUTH + NORTH ELEVATIONS

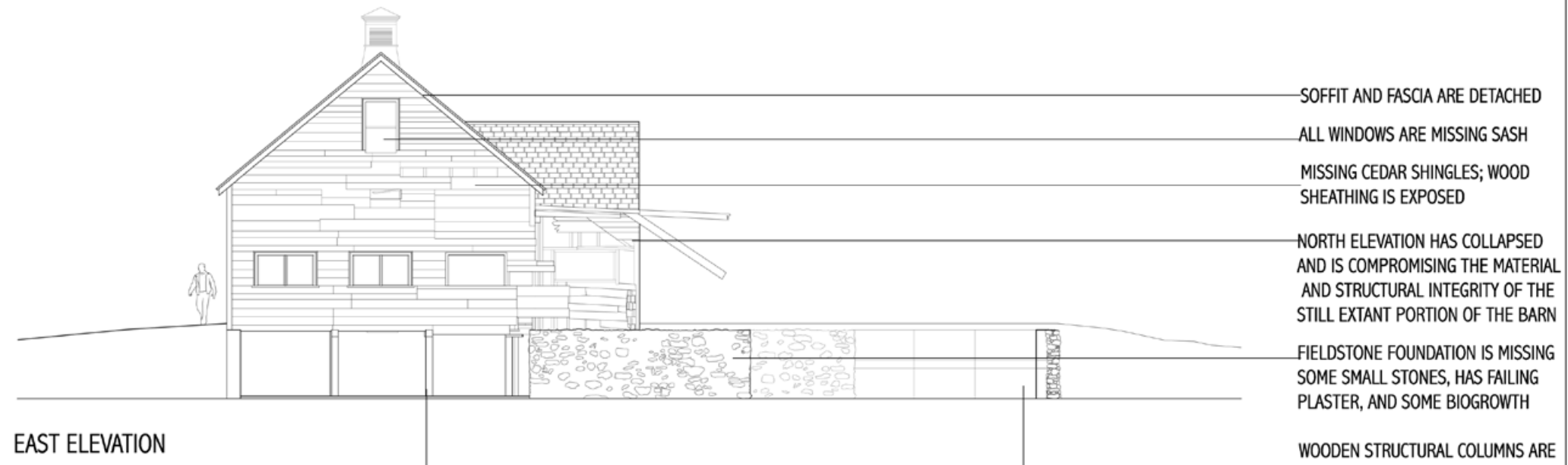
1/8"=1'-0"

Project

CODDING FARM BARN

EX.6

Drawing



CPC Project No:	000
Sheet Title	

EAST + WEST ELEVATIONS

1/8"-1'-0"

CODDING FARM BARN

EX.7

Drawing

Project

Precedents

The team researched other barns that have been renovated, including the Linden Place Barn of Bristol, Rhode Island, which was recently adapted into the Bristol Art Museum, and the newly built East Bridgewater Community Center, which has a barn attached to one end.



1. East Bridgewater
Community Center.

2. Linden Place Barn.

Architectural Program

The Coddling Farm Culture and Learning Center

The North Attleborough Historical Commission would like to develop the Coddling Farm barn into *The Coddling Farm Culture and Learning Center*. A prospectus outlining the goals and elements that the Commission would like to see incorporated into the project was provided to the student team. The team deduced that the mission of the project would be to enhance rural character, foster community spirit and encourage “learning from the land.”

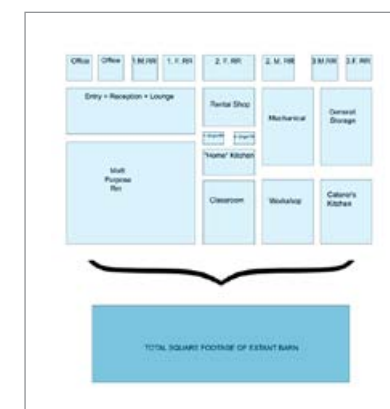
The themes that *The Coddling Farm Culture and Learning Center* would embody include locally grown food, volunteer experiences, educational programs, public events, sustainable agriculture, activities for children, adults and seniors, and year-round use.

Programs that Need Program

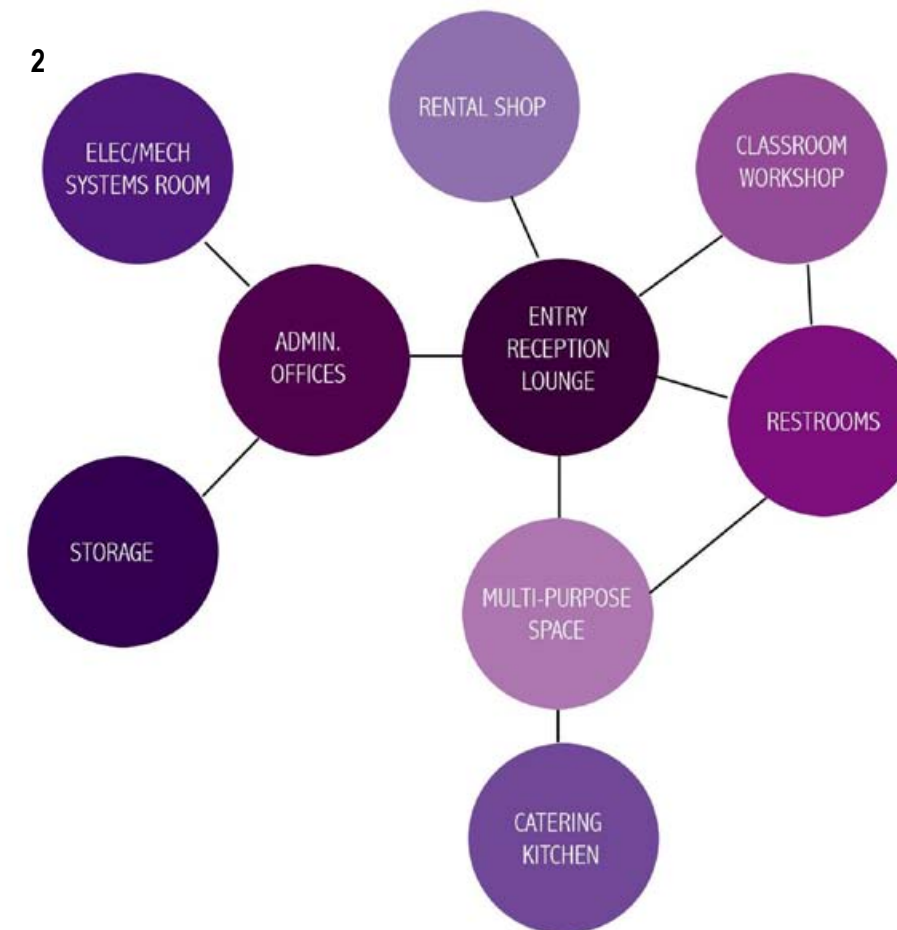
Activities that require designated architectural space include carpentry and building workshops, farm and gardening workshops, “homesteading” classes, community recreation, a rental shop and flexible space. Homesteading classes would include cooking lessons, food preservation, fiber arts, holiday wreath-making and potluck suppers.

Goals and the Challenge

The goals are to rehabilitate the Coddling Farm barn and to adapt the barn to fit the desired architectural program. The challenge is that the space of the existing barn is much smaller than the space needed for the desired program.



1



1. Diagram of the spatial challenges of the desired program.

2. Programming map.

Codding Farm Program

Calculations for extant portion of Barn:
 Foundation Level: 900 sq.ft.
 First Floor Square Footage: 1140 sq.ft.
 Loft: 900 sq.ft.
Total Existing Square Footage: 2,940 sq.ft.

Calculations for existing footprint of Barn:
 Foundation Level: 2400 sq.ft.
 First Floor Square Footage: 2640 sq.ft.
 Loft: 900 sq.ft.
Total Square Footage: 5940 sq.ft.

Space	Quantity	Occupancy (#of people)	Floor Area per Person By International Building Code (sq.ft)	Net Area per Space (sq.ft)	Total Net Area (sq.ft)
Entry + Reception Area + Lounge (Couches, chairs, game tables)	1	60	15	900	900
Administration Offices	2	1	100	100	200
Restrooms	4	Restroom Specific	N/A	Restroom Specific	830
Caterer’s Kitchen	1	25	20	500	500
Small “home” kitchen –electric appliances	1	10	20	200	200
Large Multi-Purpose Space, Dividable	1	130	15	1950	2000
Traditional Classroom	1	25	20	500	500
Workshop (Carpentry, building, farming, homesteading)	1	10	50	500	500
Rental Shop	1	10	30	300	300
General Storage	1	2	300	600	600
Mechanical Room	1	2	300	600	600
					7,130

Total Net Square Footage of Program: 7,130 sq.ft.
 x 1.3
 Total Gross Square Footage of Program: **9,269 sq.ft.**

Site Considerations

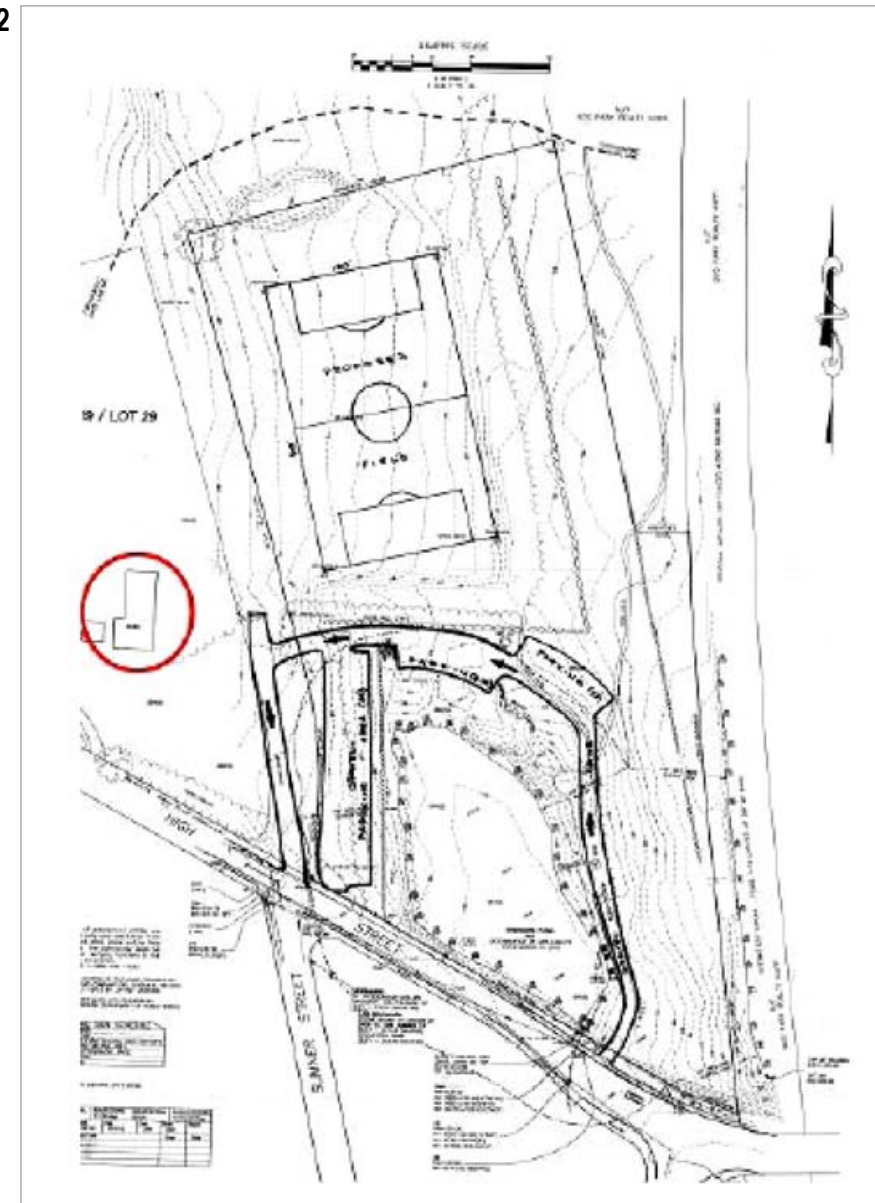
The North Attleborough Department of Parks and Recreation is planning on developing soccer fields to the northeast of the Codding Farm barn. There is also a skating rink to the southeast. They have planned for some parking that could accommodate an overflow of people at the Codding Farm barn when there aren't events at the fields, however, parking specifically for barn functions would be required, as would preferential parking for handicap accessibility.

Possibilities: The Rehoboth Barn

The North Attleborough Historical Commission was given a barn in Rehoboth to use for design possibilities. This barn was assessed. The team concluded there were three options: disassemble the Rehoboth barn and transplant it on the Codding Farm site; design a completely new addition; or salvage some of the elements of the Rehoboth barn and use them in a new design. The team decided that the barn in Rehoboth was too deteriorated to reuse.



2



1. Rehoboth barn.

2. Site considerations from the North Attleborough Department of Parks and Recreation (Codding Farm circled in red).

Rehabilitation Plan

1. 02 41 13 Selective Site Demolition

1.1. Existing Conditions: The north elevation structure has collapsed and compromises both the structural integrity and longevity of the still extant portion of the barn.

1.2. Rehabilitation Methods:

- **1.2.1.** The collapsed portion of the structure and associated materials will be removed from the site. The compromised structure should be cut where needed after the last intact structural bay towards the north to create an even end to the extant barn as preparation for new construction.
- **1.2.2.** New structural columns will be installed in kind to the existing structure to provide roof support.
- **1.2.3.** The exposed north elevation will be temporarily sealed with plywood to protect the remaining elements of the barn from weather exposure and vandals until new construction begins.

2. 04 01 40 Stone Foundation

2.1. Existing Conditions: The fieldstone foundation wall was top-coated with plaster, but

portions of this finish are missing, and some stones have become loose in the mortar. There is also damage from moisture in terms of bio-growth.

2.2. Rehabilitation Methods:

- **2.2.1.** Bio-growth will be removed from the stones using a biocide compound.
- **2.2.2.** Remaining plaster will be carefully removed from the south and west walls, but the best portion of the finish on the east wall will be preserved to illustrate the plastering technique and scored pattern.
- **2.2.3.** The stone foundation wall will be re-pointed using a historically authentic lime mortar, paying careful attention to the areas in which the mortar has failed. Missing stones will be replaced as part of this process.



3. 06 11 00 Wood Framing

3.1. Existing Conditions: The structure has experienced movement, meaning the structural beams and the floor joists have shifted. Bracing has become detached. The floor joists of the first floor level have deteriorated in some areas. The area where the cows stood (to the right of the basement barn door) is no longer connected.

3.2. Rehabilitation Methods:

- **3.2.1.** Primary structural beams that are rotted or damaged by collapse will be replaced using wood to match the existing ones in materiality and dimension. Floor joists that can be salvaged will be; new joists will be added to replace any that are not structurally sound.

4. 06 11 00 Wood Framing

4.1. Existing Conditions: The primary wood columns and secondary wall studs show a variety of conditions. Most notably, the columns at the foundation level have been cut to remove rotted portions and are now supported by concrete footings. The columns on the first floor level have been reinforced with additional pieces of wood. An additive process of building up the structure is evident, although it is not clear if this is



1. A detail of the original rubble stone foundation – the top coating has been scored to resemble a more regular stone block.

2. The columns at foundation level need to be replaced. The temporary jacks are not on level ground.

historically original or the results of the repair efforts circa 2005.

4.2. Rehabilitation Methods:

- **4.2.1.** The columns at the foundation level will be removed and replaced with new material or salvaged pieces of the proper length. The obtrusive concrete footings will be removed.
- **4.2.2.** Vertical structural members at the first floor level will be replaced with wooden columns that are dimensioned to support the structure without added pieces and patches of wood.

5. 06 11 00 Wood Framing

5.1. Existing Conditions: The wooden roof rafters were replaced when the new roof was added circa 2005. The elements are in good condition. The collapsed portion of the barn abutted the extant portion perpendicularly and the roof framing is partially still extant, especially at the junction of the two masses.

5.2. Rehabilitation Methods:

- **5.2.2.** At this time, there are no recommendations for the roof framing of the extant part of the barn. The framing that indicates the perpendicular portion that has since collapsed will be retained as an indicator of the barn's previous configuration.

6. 06 16 33 Wood Board Sheathing

6.1. Existing Conditions: The wood plank sheathing is irregularly dimensioned and has spaces between pieces. Some portions of the sheathing are missing, particularly on the east elevation. The sheathing on the east elevation is in poor condition as it has been continuously exposed to the elements. Sheathing on the south and west elevations, as well as the roof, is extant and in fair condition but not completely airtight due to irregular geometry.

6.2. Rehabilitation Methods:

- **6.2.1.** The sheathing will be preserved on the south and west elevation walls to pay homage to the barn's original construction methodology.
- **6.2.2.** The sheathing on the east elevation will be removed and replaced with contemporary plywood sheathing.

7. 06 42 13 Wood Board Paneling

7.1. Existing Conditions: The south elevation on the first floor level has some extant interior wood paneling in fair condition, but the majority of the finish is missing. The interior walls of the main space on the first floor towards the west are also paneled in good condition with a natural finish, but some are broken and missing at the far north end. The walls of the dairy wash-out room and service space are wood paneled in good condition in terms of material integrity, but the paint finish is in poor condition. All of the wood paneling has been marked by graffiti.



The graffiti marking the wood paneling on many of the interior walls will be removed.

7.2. Rehabilitation Methods:

- **7.2.1.** Wood paneling that is not painted will be sanded to remove the graffiti paint as well as smooth out any scratches and etches left by vandals.
- **7.2.2.** Wood paneling that is missing or severely damaged will be patched or replaced with new wooden boards of the same type, texture and dimension. This will be done so there are no obvious vertical seams, especially towards the north end.
- **7.2.3.** Wood paneling that is painted will be tested for lead levels; if the tests return positive, additions will be added to the scope of work to safely abate the potentially hazardous material.
- **7.2.4.** Painted wood paneling will be hand washed to remove grime and loose flakes of paint, then sanded to create a smooth surface. Lastly, the wood will be repainted for a fresh finish.

8. 06 46 00 Wood Trim

8.1. Existing Conditions: The frieze is in good condition on the west and south elevations, but completely missing from the east elevation. The vertical corner-boards on the south and west elevations are also in good condition with slight paint wear; they are damaged or missing on the east elevation. The fascia and soffit were examined from ground level since no ladder was available for a full examination. The elements are painted wood and have experienced minimal alteration, however, they are in extremely poor condition on the east elevation as the system has started to fail, disintegrate and is precariously hanging by just a few nails. The fascia and soffit appears to be in good condition on the south and west elevations.

8.2. Rehabilitation Methods:

- **8.2.1.** All extant wood trim will be hand washed with a gentle cleansing solution to remove dirt, grass and any loose flakes of paint.
- **8.2.2.** Any rough edges created from missing paint will be sanded to create a unified smooth finish.
- **8.2.3.** The frieze on the east elevation will be replaced in kind with wood to match the extant frieze on the west elevation in dimensional and material quality.
- **8.2.4.** All vertical corner-boards will be tested for material integrity. Any rotted portions, particularly near the ground, will be repaired with wood splices. Epoxy may be used to make small repairs and patch holes. All repairs will be sanded to be congruous with the texture of the rest of the trim.
- **8.2.5.** The fascia and soffit on the east elevation will be secured back into place if the material integrity of the wood is sound. If these elements need to be replaced, they will be made to match the fascia and soffit on the west elevation.
- **8.2.6.** All wooden trim will be repainted with the same white paint used for the window and door assemblies.

9. 07 31 13 Asphalt Shingles

9.1. Existing Conditions: The asphalt shingles on the roof of the barn are in good condition, as they have been replaced within the past 10 years.

9.2. Rehabilitation methods:

- **9.2.1.** At this time, there are no major recommendations for the asphalt shingles, except to preserve those that are covering the portion of the interjecting roof structure.

10. 07 46 23 Exterior Cedar Shingles

10.1 Existing Conditions: The cedar shingles that are still extant on the south and west elevations are in poor shape, as they are completely deteriorated. Many shingles are broken or missing entirely. There are no cedar shingles on the east elevation.

10.2 Rehabilitation Methods

- **10.2.1.** All cedar shingles will be removed from the south and west elevations, taking precautions not to damage the sheathing underneath.
- **10.2.2.** The extant portion of the barn will be entirely re-shingled with true cedar shingles to exactly match the historical finish.



The south and west elevations of the barn will be entirely re-shingled with true cedar shingles to exactly match the historical finish.

11.08 01 14 Operation and Maintenance of Wood Doors

11.1. Existing Conditions: There are a variety of interior doors; conditions include weathering and vandalism.

11.2. Rehabilitation Methods:

- **11.2.1.** Fully extant wood doors will be sanded to remove the graffiti paint and smooth out any scratches and etches left by vandals.
- **11.2.1.** The doors that have been broken and severely damaged from vandals will be recreated using the other existing doors as templates for design, materiality and finish.
- **11.2.2.** The doors will be restored to the appropriate condition in which they were found: interior doors that were painted will receive fresh coats of paint, and doors that were a natural wood finish will retain that aesthetic.

12.08 01 52 Operation and Maintenance of Wood Windows

12.1. Existing Conditions: The windows on the west elevation are in poor condition but have extant exterior trim, frames, sash, glazing and some glass panes. The windows on the south and east elevations are completely missing; only the

window openings, frames and some exterior trim remain extant.

12.2. Rehabilitation Methods:

- **12.2.1.** All repairs or replacement of wooden windows will be completed in accordance to the National Park Service Preservation Brief 9: The Repair of Historic Wooden Windows.

12.2.2. 08 01 52.61 Wood Window Repairs

- **12.2.2.1.** Extant wood windows will be labeled and removed for repairs. Window openings will be temporarily sealed with plywood.
- **12.2.2.2.** Window frames and jambs will be repaired in situ. Repairs may include wood splicing or epoxy fillings. If the wood has completely deteriorated, entire components may be replaced in kind. Special care will be taken to remediate areas of water damage and ensure the sills are sloping away from the window opening.
- **12.2.2.3.** Window trim will be hand washed with a gentle cleansing solution to remove dirt, grass and any loose flakes of paint.
- **12.2.2.4.** Missing pieces of trim will be recreated from wood using extant components as the template for design. Repairs will be completed in place.



nents as the template for design. Repairs will be completed in place.

- **12.2.2.5.** Any rough edges created from missing paint, repairs or additions will be sanded so as to create a unified smooth finish.
- **12.2.2.6.** Working on a horizontal surface, any extant panes of glass will be removed from the sash after softening the glazing and removing the putty and glazing points. Any panes of glass that can be salvaged will be labeled and safely stored to be reused in the sash after restoration.

- **12.2.2.7.** Any loose flakes of paint will be gently scraped and then sanded on the sash and muntins to create a continuous smooth texture.
- **12.2.2.8.** Repairs to patch, sculpt or replace wooden elements of the sash will be completed using wood or epoxy, depending on the size and location of the damage.
- **12.2.2.9.** Replacement and salvaged glass will be installed back into the sash on a bed of glazing putty. Glazing will be added on both the interior and exterior sides, ensuring a straight line and beveled edge.
- **12.2.2.10.** After the glazing putty has cured, sash will be primed, lightly sanded and painted. Careful attention will be paid to create straight paint lines and an overlap of about 1/16th of an inch of paint onto the glass to help seal the connection of glazing to glass.
- **12.2.2.11.** Sash will be reinstalled into the frames making sure to create an air-tight seal with weather-stripping where applicable.

12.2.3. 08 01 52.81 Wood Window Replacement

- **12.2.3.1** Window frames and jambs will be repaired in situ. Repairs may include wood splicing or epoxy fillings. If the wood has

Windows on the west elevation need replacement (glass and glazing), and their frames and sash require some repair and paint.

been completely deteriorated or is missing, entire components may be replaced in kind. Special care will be taken to remediate areas of water damage and ensure the sills are sloping away from the window opening.

- **12.2.3.2.** Any extant window trim will be hand washed with a gentle cleansing solution to remove dirt, grass and any loose flakes of paint.
- **12.2.3.3.** Missing pieces of trim will be recreated from wood using extant components as the template for design. Repairs will be completed in place.
- **12.2.3.4.** Any rough edges created from missing paint, repairs or additions will be sanded to create a unified smooth finish.
- **12.2.3.5.** Sash will be created using wood construction. Proportion and dimensioning will be based on extant examples and adapted to a larger scale to fit the openings of windows on the south and east elevation at the first floor level, and at the loft level on both the east and west elevations.
- **12.2.3.6.** Methods of glazing, painting and installation will follow the format as established in 12.2.2. 08 01 52.61 Wood Window Repairs.

13. 08 14 00 Wood Doors

13.1. Existing Conditions: The barn has four different types of exterior doors. The south elevation contains two doors: the primary sliding barn door and a regularly dimensioned solid door that com-



plements the design of the sliding door. Both of these doors are in fair condition with some weathering of the paint. An access door to the dairy washout room on the west elevation is the most decorative and includes a glass window, however, the wood is badly damaged as the result of vandals. Temporary patching has been attempted. All of the exterior door trim on the first floor level is in good condition. Three doors once existed at the foundation level. They have been pulled off of their hinges, and only two are extant on the site. They are laying on the ground in very poor condition.

13.2. Rehabilitation Methods:

- **13.2.1.** All extant doors, trim and frames will be hand washed with a gentle cleansing solution to remove dirt, grass and any loose flakes of paint.
- **13.2.2.** Any rough edges created from missing paint will be sanded to create a unified smooth finish.
- **13.2.3.** The sliding barn door, its standard-sized companion on the south elevation and all door trim and frames will receive a new coat of white paint on the exterior to match the existing. The interiors of the doors will be treated to remove the graffiti paint and refinished lightly to restore the original unadulterated natural wood. This process will be completed in situ.

The sliding barn door on the south elevation is in good condition, requiring only a coat of paint.

- **13.2.4.** The damaged door on the west elevation will be removed for repair. It will have its joints reinforced to recreate structural integrity. The missing bottom panel will be replaced with wood to match in kind with the rest of the door. The window will be repaired according to the scope of work identified in 12 2 1. 08 01 52.61 Wood Window Repairs. Lastly, the door will be painted in the same color to match the other exterior doors and trim.
- **13.2.5.** The two standard-dimensioned doors on the first floor level will have updated locking mechanisms that maximize security, yet do not compromise the aesthetic quality of the doors and existing hardware.

14. 08 71 00 Hardware

14.1. Existing Conditions: Hardware mostly consists of metal door hinges and doorknobs. Those that remain are severely rusted. A character-defining piece of hardware is the rail in which the primary sliding barn door operates on.

14.2. Rehabilitation Methods:

- **14.2.1.** Hardware that is salvageable should be sanded in the least abrasive way possible, repaired where possible and repainted, if appropriate.

- **14.2.2.** Missing hardware should be replaced with new hardware in keeping with the style of the original hardware.
- **14.2.3.** The sliding barn door rail hardware will be restored to full operational use.

15. 09 60 00 Flooring Concrete

15.1. Existing Conditions: The concrete floor in the dairy washout room is in fair condition. The floor slopes downward to a central drain and has experienced cracking.

15.2. Rehabilitation Methods:

- **15.2.1.** The concrete flooring will be demolished. A new concrete floor will be poured level to support the new programming functions of the space, however, the drain cover will be reinstalled as a decorative piece as a reminder of the dairy washout room's history.
- **15.2.2.** The earth floor of the foundation will be excavated approximately 2'-0" so that the space can become habitable. By code, the floor-to-ceiling height must be 8'-0". A concrete floor will be poured.

16. 09 64 29 Wood Strip and Plank Flooring

16.1. Existing Conditions: The wood floor on the first floor is in poor condition due to rot, bio-growth, wear and structural failure. The wood flooring on the loft level is in good condition with a few holes of both natural and manmade causes.



16.2. Rehabilitation Methods:

- **16.2.1.** The entirety of the wood flooring on the first floor will be replaced in kind in terms of material and dimension. This must be done to create an even floor level and continuous

aesthetic. Damage on the loft floor will be patched in kind.

17. 10 74 23 Cupolas

17.1. Existing Conditions: The cupola on top of the Coddling Farm barn is in good condition but is missing the complimentary wooden shingles at the base, thus leaving the flashing exposed.

17.2. Rehabilitation Methods:

- **17.2.1.** The wooden elements, as well as the roof of the cupola, do not require any repair. Cedar shingles to match the rest of the barn will be installed at the base.

18. 22 14 00 Facilities Storm Drainage

18.1. Existing Conditions: The site slopes downward to the east. Rainwater is expected to drain following the slope away from the barn, however, the effects of this drainage pattern along the west side of the barn have not been observed. Furthermore, the barn does not have any gutters or downspouts that would help lead water away from the structure.

Due to rot, wear and structural failure, the entire wood flooring on the first floor needs to be replaced.

18.2. Rehabilitation Methods:

- **18.2.1** Wooden gutters will be installed on the extant portion of the barn and painted to be as least intrusive to the original design as possible.
- **18.2.2.** Downspouts will be installed on the existing barn. Preferably, these elements should be metal, similar to the style used in early 20th century construction.



19. 32 32 13 Cast-in-Place Concrete Retaining Walls

19.1. Existing Conditions: The retaining wall at the rear of the foundation is in fair condition with some bio-growth from moisture exposure. This wall was added to reinforce the original fieldstone foundation.

19.2. Rehabilitation Methods:

- **19.2.1.** The concrete portion of the retaining wall will be left as is until the design of the addition is finalized, thus determining its potential for use in future construction.

20. New Addition

20.1. Existing Conditions: The proposed program for the *Codding Farm Culture and Learning Center* does not fit within the square footage of the extant portion of the barn.

20.2. Rehabilitation Methods:

- **20.2.1.** A new wood frame addition will be developed to the north of the existing Codding Farm barn. Glue-laminated wood trusses will be utilized for the celebratory structure in the multipurpose space; this architectural program occupies the majority of the new construction at the first floor level.

- **20.2.2.** A concrete foundation will be poured to support the new construction. The foundation will be accessible from ground level, as is the original barn. The intention is not to have exposed concrete as the final finish – local stone may be adhered as a historically sensitive faux finish.
- **20.2.3.** The exterior materiality will be natural-finish wood clapboards intended to weather in the same fashion as the cedar shingles on the original section of the barn. The clapboards are a traditional exterior material, yet utilized in a way that separates the new architecture from the old.
- **20.2.4.** There will be much more glazing in the new addition to capitalize on the expansive vistas of the agricultural landscape.
- **20.2.5.** The site will be regraded to accommodate the excavated foundation level and new program. The immediate exterior of the foundation level will be paved with a stone block to create a flexible outdoor space for functions. This will also act as the entry court to that floor of the building.
- **20.2.6.** A walkway will be designed to lead to the south sliding barn door, which is to act as the celebrated entry point to the barn.
- **20.2.7.** Salvaged materials and farming fixtures will be incorporated into the interior



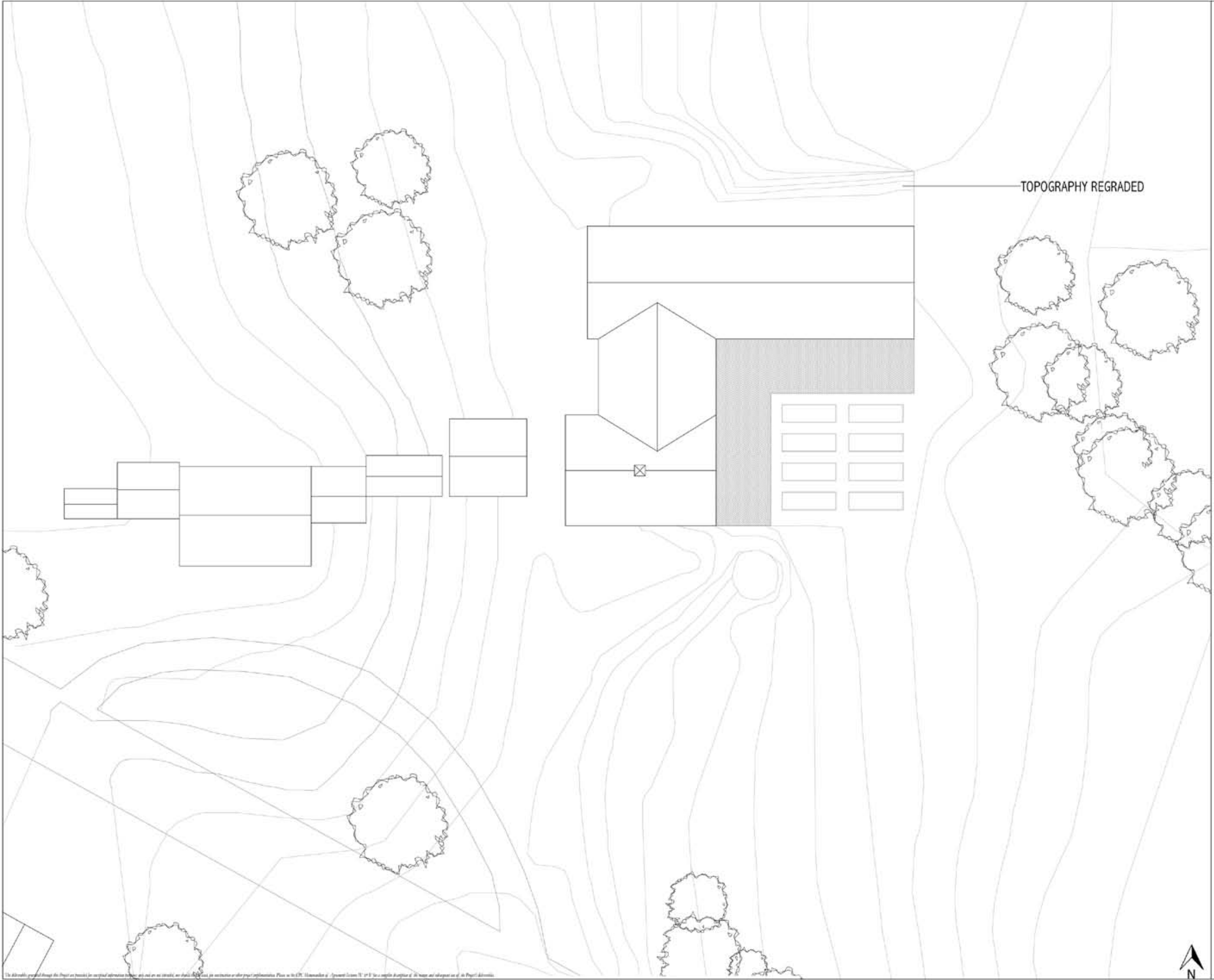
design of the addition to carry elements of the original into the new. The end result will be an eclectic mix of old and new, rustic and refined, to create dynamic spaces for the new *Codding Farm Culture and Learning Center*.

21. Geothermal Heat

The suggestion for heat is geothermal heat. This is a system where pipes are laid in the ground, and the water that runs through them is either naturally heated or cooled by the ground. It is a costly system but is eligible for a thirty percent tax credit.

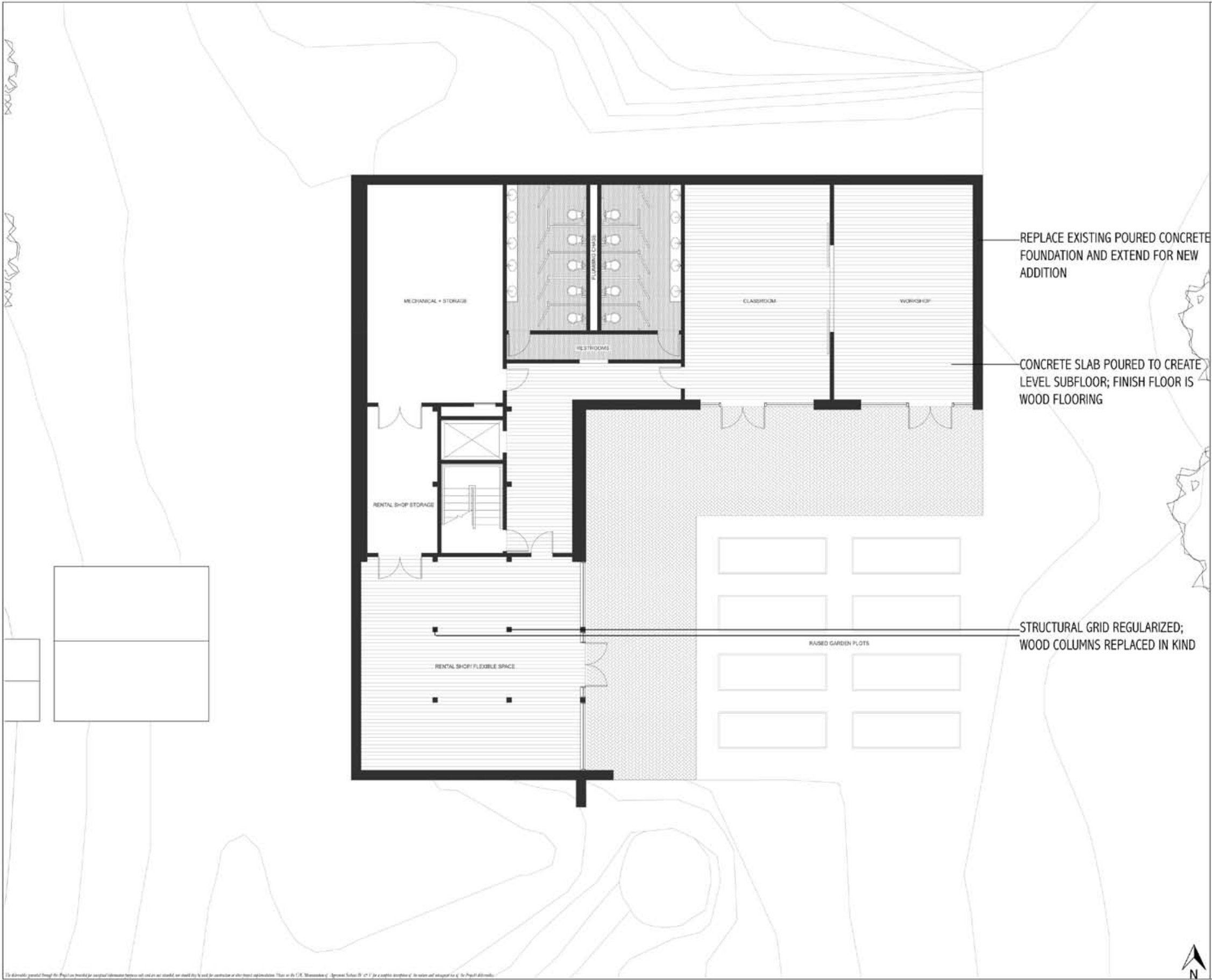
1. The original stone foundation that once supported the rear of the barn (now collapsed) has been reinforced with new concrete on two sides.


2. The yellow box in this proposed first floor plan shows the new addition to be built.

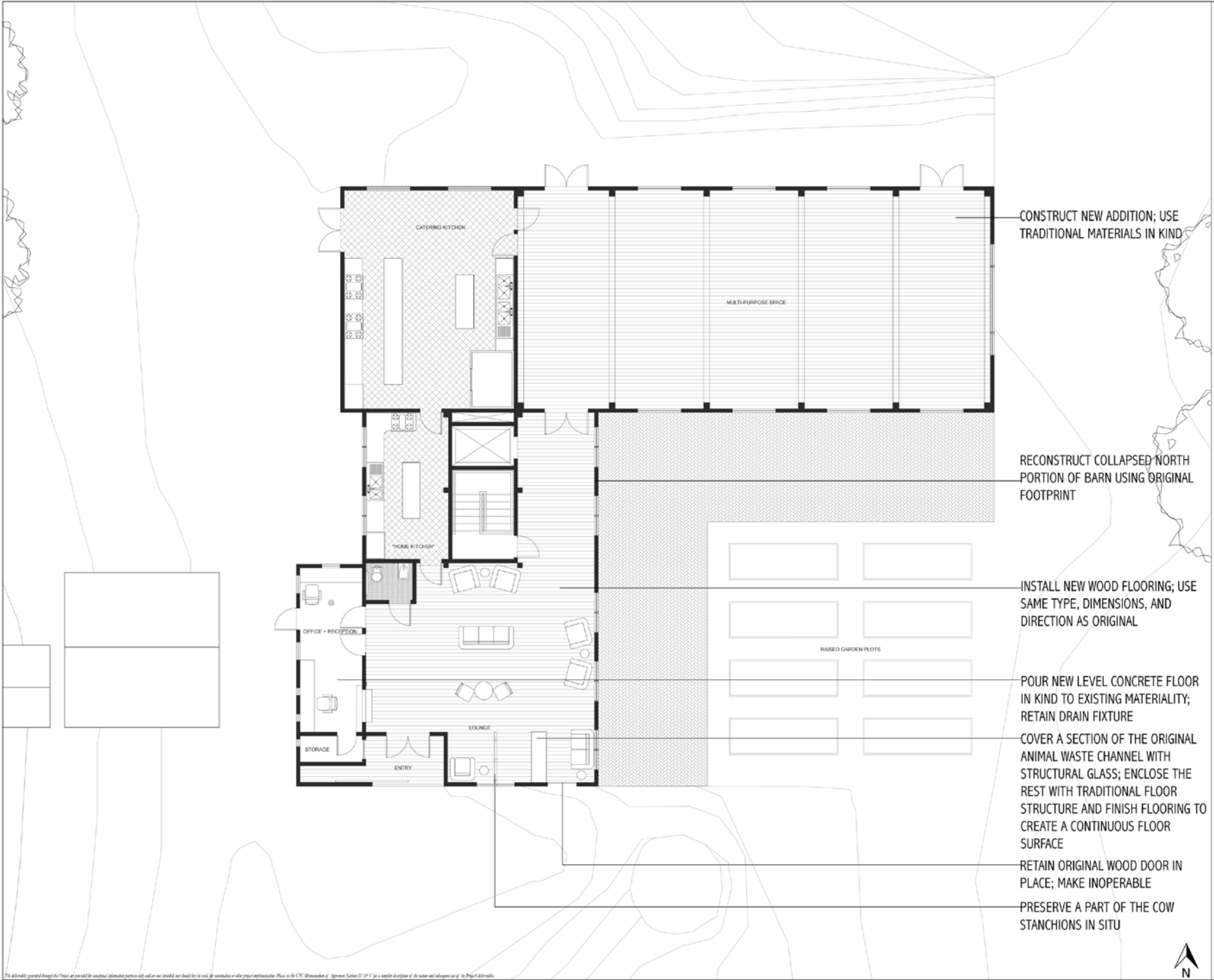


 Community Partnerships Center at Roger Williams University	CPC Project No: 000		Sheet Title		1/16" -1'-0" Drawing A.1	
	Date:	12-13-2013	SITE PLAN			
	Drawn By:	Lezha Bovino	CODDING FARM BARN			
	Checked By:	N/A	Project			
	Community Partner:		North Attleborough Historic Commission			
	Location:		217 High Street North Attleborough, MA, 02760			

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 Community Partnerships Center at Roger Williams University	CPC Project No: 000		Sheet Title
	Date: 12-13-2013		Project
	Drawn By: Leaha Boyino		
	Checked By: N/A		
	Community Partner: North Attleborough Historic Commission		
	Location: North Attleborough, MA, 02760		
	217 High Street		
FOUNDATION PLAN			1/8"=1'-0"
CODDING FARM BARN			A.2



 Community Partnerships Center at Roger Williams University	CPC Project No: 000		Sheet Title
	Date: 12-13-2013	Drawn By: Leaha Boyino	1/8"-1'-0"
Checked By: North Attleborough		Drawing	
Community Partner: Historic Commission		A.3	
Location: North Attleborough, MA 02760		Project	
		CODDING FARM BARN	



- RECONSTRUCT ROOF TO MATCH THE RIDGE LINE OF ORIGINAL NORTH END OF BARN
- STRUCTURE NEW ADDITION MULTI-PURPOSE SPACE WITH GLU-LAMINATED WOOD TRUSS SYSTEM
- LOFT NOT USED FOR HUMAN OCCUPATION
- INSTALL SYSTEMS, INSULATION WITHIN WALL CAVITY; COVER EXPOSED WOOD FRAMING WITH FINISH; WOOD PANELING USING SALVAGED MATERIALS
- FOUNDATION EXCAVATED 2'-6" TO MEET CODE REQUIREMENTS FOR ROOM HEIGHT

1/8" = 1'-0"

LONGITUDINAL SECTION

A.4

CODDING FARM BARN

CPC Project No:	000	Sheet Title	
Date:	12.13.2013		
Drawn By:	Lezha Bovino		
Checked By:	N/A	Project	
Community Partner:	North Attleborough Historic Commission		
Location:	217 High Street North Attleborough, MA 02760		



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HP student assesses
the roof of the barn.

Conclusion

The student team focused on developing recommendations for rehabilitation of the barn at Coddington Farm. It is located 217 High Street in North Attleborough, Massachusetts, and is currently owned by the town and being cared for by the North Attleborough Historic Commission.

Existing conditions of the barn were assessed, and a scope of work was developed to suggest rehabilitation treatments. Collaboration between the student team and the North Attleborough Historic Commission resulted in a designation of programs and future uses the barn may have. This report contains one viable option for the rehabilitation of the Coddington Farm barn.



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